OUTFALL MONITORING SCIENCE ADVISORY PANEL (OMSAP) MEETING
Tuesday, October 21, 2003, 10:00 AM to 3:00 PM, WHOI

DRAFT MINUTES

AGENDA TOPICS

- Review of MWRA's draft revised Ambient Monitoring Plan
- Update on MWRA's efforts to improve data collection from buoys
- MWRA's July 2003 zooplankton report
- External lesions observed on some winter flounder during 2003 sampling
- Quarterly Contingency Plan update
- Items Requested by OMSAP at 2003 Workshops:
    - Requested statistical analyses on water column data
    - Threshold implications of infaunal sampling changes approved by OMSAP

SUMMARY OF ACTION ITEMS & RECOMMENDATIONS

1. OMSAP approved the July 24, 2003 workshop summary with no amendments.
2. OMSAP requests a change in the June 18-19, 2003 workshop summary. In the third bullet under water column monitoring, add the word "consider": "OMSAP also recommends that these changes be approved on the condition that MWRA *consider* augment*ing* the instrumentation on the USGS and NOAA moorings near the outfall that collect continuous water quality data." OMSAP also would like a note added indicating that they recommend MWRA consider other mooring locations and technologies as well.
3. OMSAP and audience members provided comments to MWRA's draft revised Ambient Monitoring Plan [comments listed below].
4. OMSAP recommends that MWRA plan an invited workshop of experts to discuss the goals, issues, technologies, and costs of augmenting their ambient monitoring with continuous water quality monitoring and additional use of satellite data.
5. OMSAP commented on MWRA's July 2003 zooplankton report [comments listed below].
6. OMSAP recommends that MWRA conduct a special study to investigate the recent observations of flounder lesions. OMSAP recommends that MWRA work with MADMF, NMFS, EPA, MADEP, Dr. Michael Moore (WHOI), Dr. Roxanna Smolowitz (MBL), and other fish biologists to investigate the occurrence of blind side flounder lesions in Boston Harbor and Massachusetts Bay. OMSAP suggests that MWRA also contact the New England Fishery Management Council and that the Inter-Agency Advisory Committee convene to further discuss this issue.
7. OMSAP recommends that as part of the flounder lesion special study, that MWRA and the other agencies involved with fisheries develop a lesion identification protocol so that future identification of lesions is more consistent.

ATTENDANCE

Members Present: Andy Solow, WHOI (chair); Bob Beardsley, WHOI; Scott Nixon, U. Rhode Island; Judy Pederson, MIT/Sea Grant; Jim Shine, Harvard School of Public Health; and Juanita Urban-Rich, U. Mass Boston.

Observers: Ellen Baptiste Carpenter, Battelle; Bruce Berman, Save the Harbor/Save the Bay; Mike Bothner, USGS; Jeanine Boyle, Battelle; Todd Callaghan, MCZM; Cathy Coniaris, MADEP; Mike Delaney, MWRA; Winnie Donnelly, MADEP; David Dow, NMFS; Patty Foley, Save the Harbor/Save the Bay; Maury Hall, MWRA; Carlton Hunt, Battelle; Mingshun Jiang, U. Mass Boston; Ken Keay,

MWRA; Wendy Leo, MWRA; Suh Yuen Liang, MWRA; Matt Liebman, EPA; Megan Lim, Save the Harbor/Save the Bay; Mike Mickelson, MWRA; Michael Moore, WHOI; Tara Nye, Association to Preserve Cape Cod; Andrea Rex, MWRA; Jack Schwartz, MADMF; Steve Tucker, Cape Cod Commission; and Jeff Turner, U. Mass Dartmouth.

MINUTES

REVIEW OF MWRA'S DRAFT REVISED AMBIENT MONITORING PLAN (AMP)

A. Rex reviewed the draft revised AMP and OMSAP and the audience provided comments. The document has been rewritten and OMSAP's recommended revisions have been added. [Document is located at: http://www.mwra.state.ma.us/harbor/enquad/pdf/ms-087.pdf].

Specific comments:

- Effluent monitoring – no comments
- Water column monitoring
    - Add dates when new measurements were added. (M. Liebman)
    - Note both reasons as to why the boundary stations were added. (1) The stations were added as requested by the Model Evaluation Group because (2) they felt that it was important to examine the Gulf of Maine influence on the nearfield. (D. Dow)
    - Find a way to make sure that the original Ambient Monitoring Plan is always available, i.e. on CDs at libraries, or on the web. (B. Berman and S. Tucker)
- Benthic monitoring – no comments
- Fish and shellfish monitoring
    - OMSAP approved of the proposed fish and shellfish monitoring revisions.
    - OMSAP recommends that MWRA conduct a special study to investigate the recent observations of flounder lesions. OMSAP recommends that MWRA work with MADMF, NMFS, EPA, MADEP, Dr. Michael Moore (WHOI), Dr. Roxanna Smolowitz (MBL), and other fish biologists to investigate the occurrence of blind side flounder lesions in Boston Harbor and Massachusetts Bay. OMSAP suggests that MWRA also contact the New England Fishery Management Council and that the Inter-Agency Advisory Committee convene to further discuss this issue.
    - OMSAP recommends that as part of this special study, that MWRA and the other agencies involved with fisheries develop a lesion identification protocol so that future identification of lesions is more consistent.
    - Under the proposed revision for fish and shellfish contaminant monitoring, a Contingency Plan threshold exceedance would not be re-sampled for verification until another three years. If a Contingency Plan threshold was exceeded, then re-sampling should be required the following year. (J. Schwartz)

General OMSAP comments:

- Evaluate the feasibility of sampling according to the "ecological" calendar and not be tied to the Julian calendar, e.g. begin sampling for the year when the winter-spring bloom occurs, not on a specific calendar date.
- OMSAP approved of the changes in the draft revised AMP.

UPDATE ON MWRA'S EFFORTS TO IMPROVE DATA COLLECTION FROM BUOYS

M. Mickelson presented information about the National Weather Service (NWS) and US Geological Survey (USGS) buoys currently collecting data in Massachusetts Bay. He also showed preliminary data from a NWS test buoy off the coast of Florida. At this time there are three plausible options:

(1) Attach near-surface instruments to the NWS Boston buoy 44013.
(2) Attach sub-surface instruments to the USGS buoy "A".
(3) Deploy a new buoy with instruments at several depths in the water column.

OMSAP recommends that MWRA plan an invited workshop of experts to discuss the goals, issues, technologies, and costs of augmenting their ambient monitoring with continuous water quality monitoring and additional use of satellite data.

MWRA'S JULY 2003 ZOOPLANKTON REPORT

K. Keay summarized MWRA's attempts to develop a zooplankton threshold and OMSAP's review of these thresholds. In 2000, OMSAP recommended that MWRA delete the *Acartia*-based zooplankton threshold and instead conduct an analysis of the zooplankton data to examine whether a "conveyor belt" flows from north to south that influences the zooplankton dynamics in Massachusetts and Cape Cod Bays. J. Turner then reviewed MWRA's zooplankton report submitted to EPA, MADEP, and OMSAP in July 2003. [Report is located at: http://www.mwra.state.ma.us/harbor/enquad/pdf/2003-06.pdf]

OMSAP then commented on the report.

- OMSAP felt that MWRA adequately examined the Gulf of Maine-Cape Cod Bay "conveyor belt" hypothesis and that there does not appear to be a strong year-round north-south conveyor belt of flow that influences zooplankton dynamics.
- OMSAP believes that at the present time, MWRA no longer should be attempting to develop a zooplankton threshold. MWRA's past proposed thresholds have not proven to be useful indicators of excessive nutrient enrichment.
- OMSAP suggested three ideas for future analysis of the zooplankton data:
    - Plot *Calanus* vs. temperature. J. Pederson thought Bob Kenney had examined this (as it pertains to right whales) and C. Coniaris agreed to contact him.
    - Plot primary production vs. zooplankton.
    - Examine regionwide zooplankton data to help interpret the zooplankton in the nearfield.

EXTERNAL LESIONS OBSERVED ON SOME WINTER FLOUNDER DURING 2003 SAMPLING

M. Moore presented recent observations of lesions on the blind side (bottom) of winter flounder [Report will be posted on MWRA's website shortly]. Lesion prevalence data for April 2003 flounder sampling:

Station	Ulcer Prevalence % (sample size)
Outfall site	24% (70)
Broad Sound	16% (50)
Nantasket Beach	6% (50)
Eastern Cape Cod Bay	0% (50)
Deer Island	20-27% (15)*

* 3-4 flounder were recalled in hindsight to bear ulcers

M. Moore presented MADMF and NMFS observations of similar lesions on winter flounder in central and western Massachusetts Bay. He also noted that sores noted on winter flounder in 2001 during MWRA sampling were similar to the lesions seen in 2003. Cultures of the bacteria from the 2003 lesions did not yield a common pathogenic bacterium. Skin ulceration in fish has been documented in other parts of the world, but the causes and stressors involved are not well understood. M. Moore recommends that MWRA implement a more systemic way of identifying and recording the lesions (e.g. on-board identification charts with photographs of different types of lesions of varying severity) and MWRA

intends to implement this recommendation. OMSAP agreed that this was important to implement and that it should be in place by the spring 2004 sampling survey. OMSAP also recommends that MWRA conduct a special study, in conjunction with other agencies and possibly the New England Fishery Management Council, to further examine the lesions in winter flounder [for more details, see page 2 for OMSAP's comments on MWRA's draft revised Ambient Monitoring Plan].

QUARTERLY CONTINGENCY PLAN UPDATE

M. Mickelson presented samples of the types of information that are reported on the MWRA website. Quarterly reporting of effluent and ambient monitoring is posted on the Contingency Plan web page listed below.

Boston Harbor and Massachusetts Bay	http://www.mwra.state.ma.us/harbor/html/bhrecov.htm
MWRA's NPDES Permit: an overview	http://www.mwra.state.ma.us/harbor/html/npdes.htm
Contingency Plan	http://www.mwra.state.ma.us/harbor/html/contingency.htm

OMSAP-REQUESTED STATISTICAL ANALYSES ON WATER COLUMN DATA

At the June 18-19, 2003 water quality monitoring review workshop, OMSAP recommended the reduction in nearfield stations from 21 to 7 based on the statistical analysis (using both pre- and post-discharge data) presented by MWRA showing that the survey means and variances from 7 stations were very similar to those based on data collected at 21 stations. OMSAP had requested that MWRA repeat this analysis using only post-discharge data. S. Liang presented the results of this analysis. In summary, the analysis using only post-discharge data shows show similar patterns to the analysis using both pre- and post-discharge data although ammonium, as expected, has greater spatial variability in the post-discharge data. OMSAP thanked MWRA for conducting the analysis, as requested.

THRESHOLD IMPLICATIONS OF INFAUNAL SAMPLING CHANGES APPROVED BY OMSAP

At the July 24, 2003 benthic monitoring review workshop, OMSAP recommended that the benthic infaunal stations be split in two and sampled on alternate years. They also requested that MWRA evaluate how this would affect MWRA's infaunal community Contingency Plan thresholds. K. Keay presented the results of the evaluation and concluded that this change in sampling would affect the thresholds only slightly. From MWRA's information briefing: "….starting in 2004, MWRA will test nearfield annual means for infaunal diversity thresholds against trigger levels derived from the baseline data for the station subset sampled that year. Thus the probability of exceeding a threshold by chance will stay the same." OMSAP approved of this approach.

ADJOURNED

MEETING HANDOUTS:

- Agenda
- October 2003 OMSAP/PIAC/IAAC membership lists
- July 2003 draft OMSAP workshop summary
- MWRA information briefings
- Draft revised MWRA ambient outfall monitoring plan

Summary prepared by C. Coniaris. Post-meeting comments are included in [brackets]. All such comments have been inserted for clarification only. They do not, nor are they intended to, suggest that such insertions were part of the live meeting components and have been expressly set-off so as to avoid such inference.